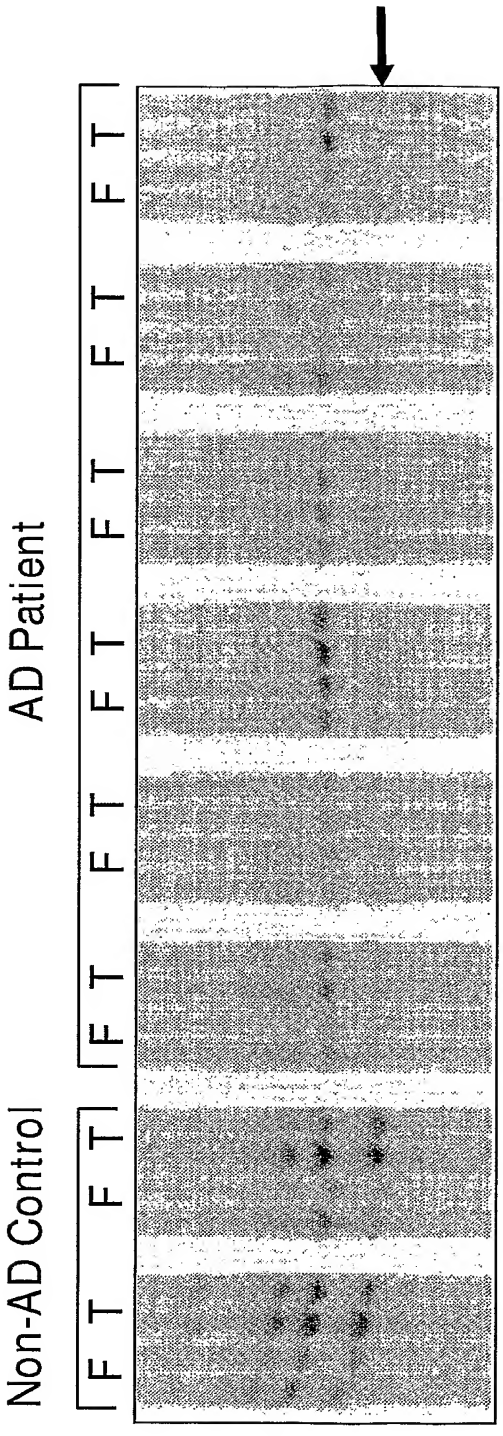


Fig. 1: Identification of differentially expressed genes in a fluorescence differential display screen

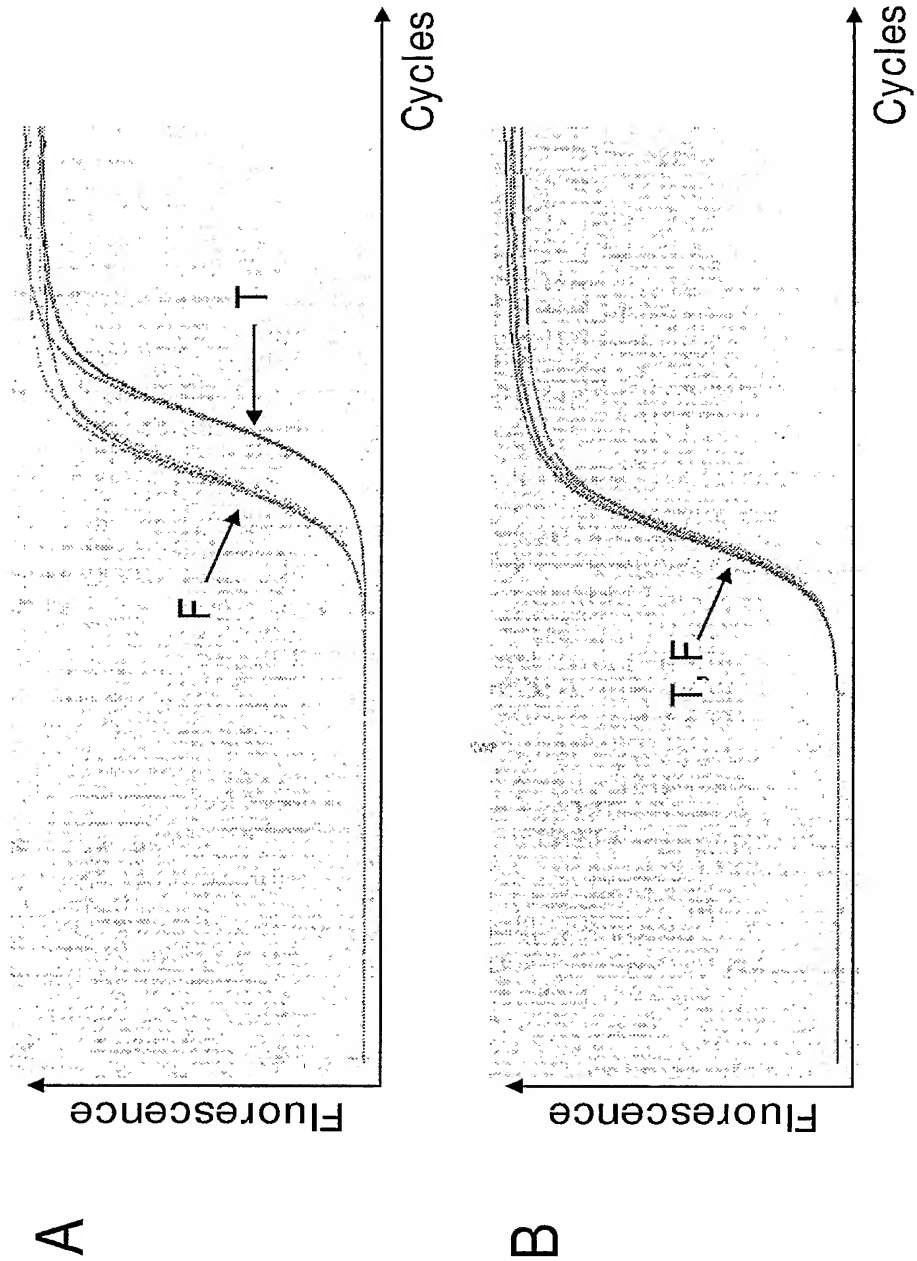


Fig. 2: Verification of differential expression of human MAL2 by quantitative RT-PCR

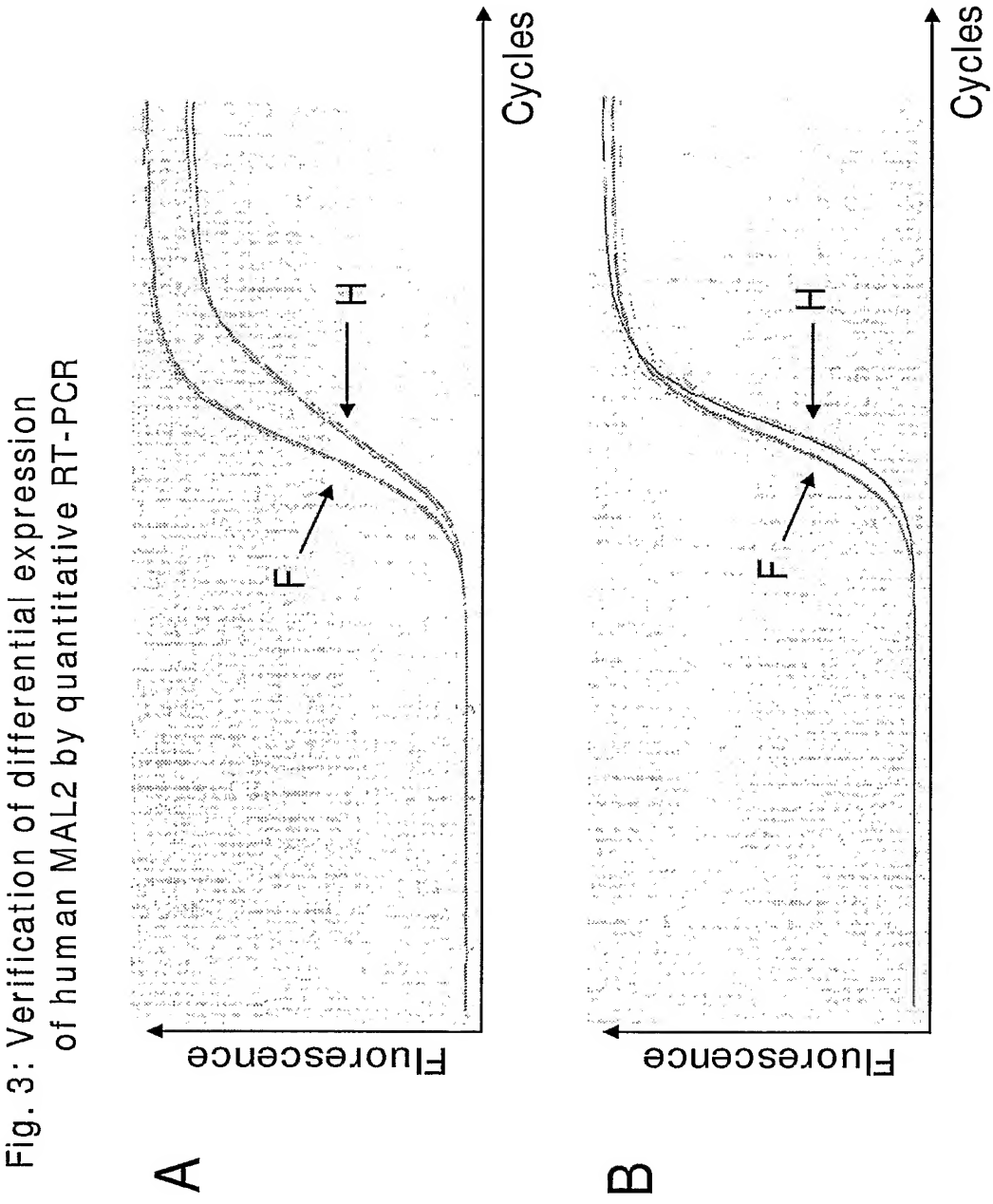


Fig. 3: Verification of differential expression of human MAL2 by quantitative RT-PCR

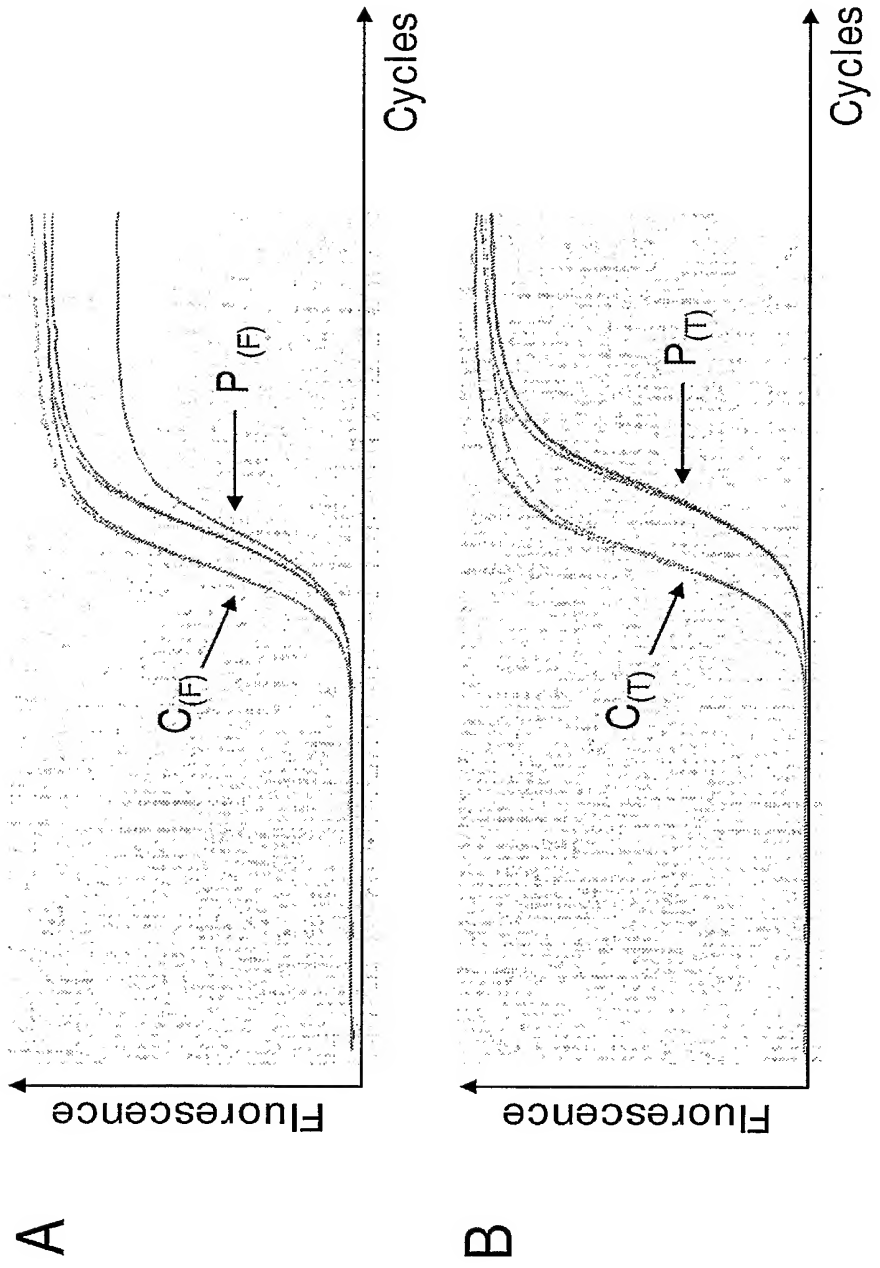


Fig. 4: Verification of differential expression of MAL2 by quantitative PCR

Fig. 5 : SEQ ID NO: 1,
amino acid sequence of
human MAL2 protein

Length: 176 aa

```
  1 MSAGGASVPP PPNPAVSFPP PRVTLPAGPD ILRTYSGAFV CLEILFGGLV
 51 WILVASSNVP LPLLQGWVMF VSVTAFFFSL LFLGMFLSGM VAQIDANWNF
101 LDFAYHFTVF VFYFGAFLLE AAATSLHDLH CNTTITGQPL LSDNQYNINV
151 AASIFAFMTT ACYGCSLGLA LRRWRP
```

Fig. 6: SEQ ID NO: 2,
nucleotide sequence of
human MAL2 cDNA

Length: 2808 bp

```
   1 GGCGGCGGCG GCAGGAGCCC GGGAGGCGGA GGCGGGAGGC GGCGGCGGCG
  51 CGCGGAGACG CAGCAGCGGC AGCGGCAGCA TGTCGGCCGG CGGAGCGTCA
 101 GTCCCGCCGC CCCCGAACCC CGCCGTGTCC TTCCCGCCGC CCCGGGTCAC
 151 CCTGCCCGCC GGCCCCGACA TCCTGCGGAC CTACTCGGGC GCCTTCGTCT
 201 GCCTGGAGAT TCTGTTCGGG GGTCTTGTCT GGATTTTGGT TGCCTCCTCC
 251 AATGTTCCTC TACCTCTACT ACAAGGATGG GTCATGTTTG TGTCCGTGAC
 301 AGCGTTTTTC TTTTCGCTCC TCTTTCTGGG CATGTTCCTC TCTGGCATGG
 351 TGGCTCAAAT TGATGCTAAC TGGAACTTCC TGGATTTTGC CTACCATTTT
 401 ACAGTATTTG TCTTCTATTT TGGAGCCTTT TTATTGGAAG CAGCAGCCAC
 451 ATCCCTGCAT GATTTGCATT GCAATACAAC CATAACCGGG CAGCCACTCC
 501 TGAGTGATAA CCAGTATAAC ATAAACGTAG CAGCCTCAAT TTTTGCCTTT
 551 ATGACGACAG CTTGTTATGG TTGCAGTTTG GGTCTGGCTT TACGAAGATG
 601 GCGACCGTAA CACTCCTTAG AAACTGGCAG TCGTATGTTA GTTTCACTTG
 651 TCTACTTTAT ATGTCTGATC AATTTGGATA CCATTTTGTC CAGATGCAAA
 701 AACATTCCAA AAGTAATGTG TTTAGTAGAG AGAGACTCTA AGCTCAAGTT
 751 CTGGTTTATT TCATGGATGG AATGTTAATT TTATTATGAT ATTAAAGAAA
 801 TGGCCTTTTA TTTTACATCT CTCCCCTTTT TCCCTTTCCC CCTTTATTTT
 851 CCTCCTTTTC TTTCTGAAAG TTTCCTTTTA TGTCCATAAA ATACAAATAT
 901 ATTGTTCATA AAAAATTAGT ATCCCTTTTG TTTGGTTGCT GAGTCACCTG
 951 AACCTTAATT TTAATTGGTA ATTACAGCCC CTAAAAAAAA CACATTTCAA
1001 ATAGGCTTCC CACTAAACTC TATATTTTAG TGTAAACCAG GAATTGGCAC
1051 ACTTTTTTTA GAATGGGCCA GATGGTAAAT ATTTATGCTT CACGGTCCAT
1101 ACAGTCTCTG TCACAACTAT TCAGTTCTGC TAGTATAGCG TGAAAGCAGC
1151 TATACACAAT ACAGAAATGA ATGAGTGTGG TTATGTTCTA ATAAAACTTA
1201 TTTATAAAAA CAAGGGGAGG CTGGGTTTAG CCTGTGGGCC ATAGTTTGTC
1251 AACCACTGGT GTAAAACCTT AGTTATATAT GATCTGCATT TTCTTGAACT
1301 GATCATTGAA AACTTATAAA CCTAACAGAA AAGCCACATA ATATTTAGTG
1351 TCATTATGCA ATAATCACAT TGCCTTTGTG TTAATAGTCA AATACTTACC
1401 TTTGGAGAAT ACTTACCTTT GGAGGAATGT ATAAAATTTC TCAGGCAGAG
1451 TCCTGGATAT AGGAAAAAGT AATTTATGAA GTAAACTTCA GTTGCTTAAT
1501 CAAACTAATG ATAGTCTAAC AACTGAGCAA GATCCTCATC TGAGAGTGCT
1551 TAAAATGGGA TCCCCAGAGA CCATTAACCA ATACTGGAAC TGGTATCTAG
1601 CTACTGATGT CTTACTTTGA GTTTATTTAT GCTTCAGAAT ACAGTTGTTT
1651 GCCCTGTGCA TGAATATACC CATATTTGTG TGTGGATATG TGAAGCTTTT
1701 CCAAATAGAG CTCTCAGAAG AATTAAGTTT TTACTTCTAA TTATTTTGCA
1751 TTACTTTGAG TTAAATTTGA ATAGAGTATT AAATATAAAG TTGTAGATTC
1801 TTATGTGTTT TTGTATTAGC CCAGACATCT GTAATGTTTT TGCACTGGTG
1851 ACAGACAAAA TCTGTTTTAA AATCATATCC AGCACAAAAA CTATTTCTGG
1901 CTGAATAGCA CAGAAAAGTA TTTTAACCTA CCTGTAGAGA TCCTCGTCAT
1951 GGAAAGGTGC CAAACTGTTT TGAATGGAAG GACAAGTAAG AGTGAGGCCA
2001 CAGTTCCCAC CACACGAGGG CTTTTGTATT GTTCTACTTT TTCAGCCCTT
2051 TACTTTCTGG CTGAAGCATC CCCTTGGAGT GCCATGTATA AGTTGGGCTA
2101 TTAGAGTTCA TGGAACATAG AACAACCATG AATGAGTGGC ATGATCCGTG
2151 CTTAATGATC AAGTGTTACT TATCTAATAA TCCTCTAGAA AGAACCCTGT
2201 TAGATCTTGG TTTGTGATAA AAATATAAAG ACAGAAGACA TGAGGAAAAA
```

2251 CAAAAGGTTT GAGGAAATCA GGCATATGAC TTTATACTTA ACATCAGATC
2301 TTTTCTATAA TATCCTACTA CTTTGGTTTT CCTAGCTCCA TACCACACAC
2351 CTAAACCTGT ATTATGAATT ACATATTACA AAGTCATAAA TGTGCCATAT
2401 GGATATACAG TACATTCTAG TTGGAATCGT TTACTCTGCT AGAATTTAGG
2451 TGTGAGATTT TTTGTTTCCC AGGTATAGCA GGCTTATGTT TGGTGGCATT
2501 AAATTGGTTT CTTTAAAATG CTTTGGTGGC ACTTTTGTAA ACAGATTGCT
2551 TCTAGATTGT TACAAACCAA GCCTAAGACA CATCTGTGAA TACTTAGATT
2601 TGTAGCTTAA TCACATTCTA GACTTGTGAG TTGAATGACA AAGCAGTTGA
2651 ACAAAAATTA TGGCATTTAA GAATTTAACA TGTCTTAGCT GTAAAAATGA
2701 GAAAGTGTTG GTTGGTTTTA AAATCTGGTA ACTCCATGAT GAAAAGAAAT
2751 TTATTTTATA CGTGTTATGT CTCTAATAAA GTATTCATTT GATAAAAAAA
2801 AAAAAAAA

Fig. 7: SEQ ID NO: 3

Length: 270 bp

```
  1 TGGTGGCACT TTTGTAAACA GATTGCTTCT AGATTGTTAC AAACCAAGCC
 51 TAAGACACAT CTGTGAATAC TTAGATTTGT AGCTTAATCA CATTCTAGAC
101 TTGTGAGTTG AATGACAAAG CAGTTGAACA AAAATTATGG CATTTAAGAA
151 TTTAACATGT CTTAGCTGTA AAAATGAGAA AGTGTTGGTT GGTTTTAAAA
201 TCTGGTAACT CCATGATGGA AAGAAATTTA TTTTATACGT GTTATGTCTC
251 TAATAAAGTA TTCATTTGAT
```

Fig. 8: SEQ ID NO: 4,
nucleotide sequence of
human MAL2 coding sequence

Length: 531 bp

```
  1  ATGTCGGCCG GCGGAGCGTC AGTCCCGCCG CCCCCGAACC CCGCCGTGTC
 51  CTTCCCGCCG CCCCGGGTCA CCCTGCCCGC CGGCCCCGAC ATCCTGCGGA
101  CCTACTCGGG CGCCTTCGTC TGCCTGGAGA TTCTGTTCGG GGGTCTTGTC
151  TGGATTTTGG TTGCCTCCTC CAATGTTCCT CTACCTCTAC TACAAGGATG
201  GGTCATGTTT GTGTCCGTGA CAGCGTTTTT CTTTTCGCTC CTCTTTCTGG
251  GCATGTTCCT CTCTGGCATG GTGGCTCAAA TTGATGCTAA CTGGAACTTC
301  CTGGATTTTG CCTACCATTT TACAGTATTT GTCTTCTATT TTGGAGCCTT
351  TTTATTGGAA GCAGCAGCCA CATCCCTGCA TGATTTGCAT TGCAATACAA
401  CCATAACCGG GCAGCCACTC CTGAGTGATA ACCAGTATAA CATAAACGTA
451  GCAGCCTCAA TTTTTGCCTT TATGACGACA GCTTGTTATG GTTGCAGTTT
501  GGGTCTGGCT TTACGAAGAT GGCGACCGTA A
```

Fig. 9: Alignment of SEQ ID NO: 2
with SEQ ID NO: 3

Length: 270 bp

```
   1 TGGTGGCACTTTTGTAAACAGATTGCTTCTAGATTGTTACAAACCAAGCC 50
     ||||||||||||||||||||||||||||||||||||||||||||||||||
2524 TGGTGGCACTTTTGTAAACAGATTGCTTCTAGATTGTTACAAACCAAGCC 2573

  51 TAAGACACATCTGTGAATACTTAGATTTGTAGCTTAATCACATTCTAGAC 100
     ||||||||||||||||||||||||||||||||||||||||||||||||||
2574 TAAGACACATCTGTGAATACTTAGATTTGTAGCTTAATCACATTCTAGAC 2623

 101 TTGTGAGTTGAATGACAAAGCAGTTGAACAAAAATTATGGCATTTAAGAA 150
     ||||||||||||||||||||||||||||||||||||||||||||||||||
2624 TTGTGAGTTGAATGACAAAGCAGTTGAACAAAAATTATGGCATTTAAGAA 2673

 151 TTTAACATGTCTTAGCTGTAAAAATGAGAAAGTGTTGGTTGGTTTTAAAA 200
     ||||||||||||||||||||||||||||||||||||||||||||||||||
2674 TTTAACATGTCTTAGCTGTAAAAATGAGAAAGTGTTGGTTGGTTTTAAAA 2723

 201 TCTGGTAACTCCATGATGGAAAGAAATTTATTTTATACGTGTTATGTCTC 250
     |||||||||||||||||| ||||||||||||||||||||||||||||||
2724 TCTGGTAACTCCATGATGAAAAGAAATTTATTTTATACGTGTTATGTCTC 2773

 251 TAATAAAGTATTCATTTGAT 270
     ||||||||||||||||||||
2774 TAATAAAGTATTCATTTGAT 2793
```

Fig. 10:

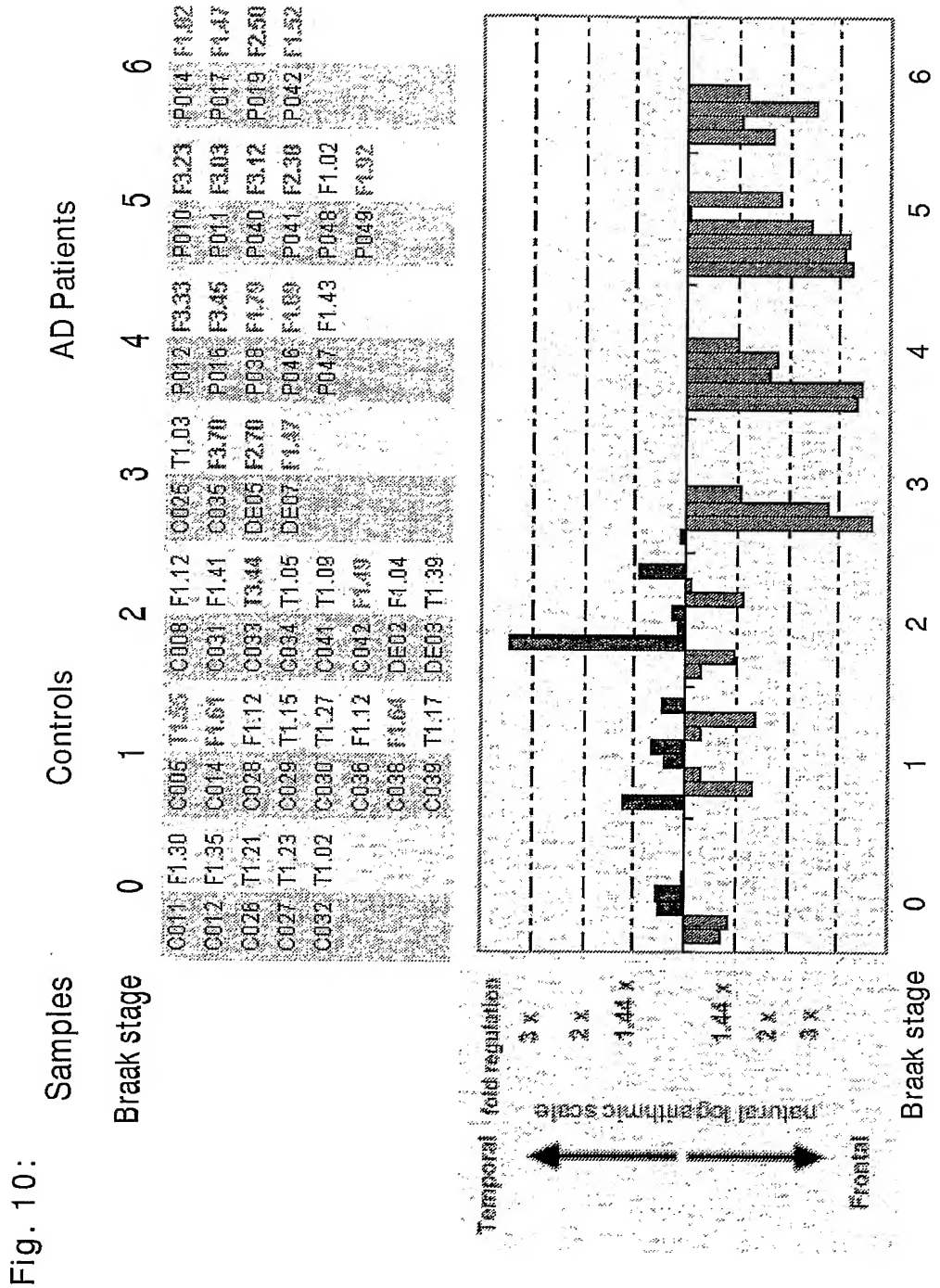

Samples
Controls
AD Patients
Braak stage
0
1
2
3
4
5
6
C011 F1.30 C005 T1.33 C008 F1.12 C025 T1.03 P012 F3.33 P010 F3.23 P014 F1.62
C012 F1.35 C014 F1.01 C031 F1.41 C035 F3.70 P016 F3.45 P011 F3.03 P017 F1.47
C026 T1.21 C028 F1.12 C033 T3.44 DE05 F2.70 P038 F1.70 P040 F3.12 P019 F2.50
C027 T1.23 C029 T1.15 C034 T1.05 DE07 F1.47 P046 F1.69 P041 F2.38 P042 F1.52
C032 T1.02 C030 T1.27 C041 T1.08 P047 F1.43 P048 F1.02
C036 F1.12 C042 F1.49 P049 F1.92
C038 F1.04 DE02 F1.04
C039 T1.17 DE03 T1.39
Temporal
Frontal
fold regulation
natural logarithmic scale
3 x
2 x
1.44 x
1.44 x
2 x
3 x
Braak stage
0
1
2
3
4
5
6

Fig. 11:

sample	Δ (fold) (hippocampus/ frontal cortex)
control C005	0.84
control C008	0.62
control C004	1.00
patient P012	1.13
patient P016	0.12
patient P010	2.04
patient P011	1.74
patient P014	1.24
patient P019	0.53

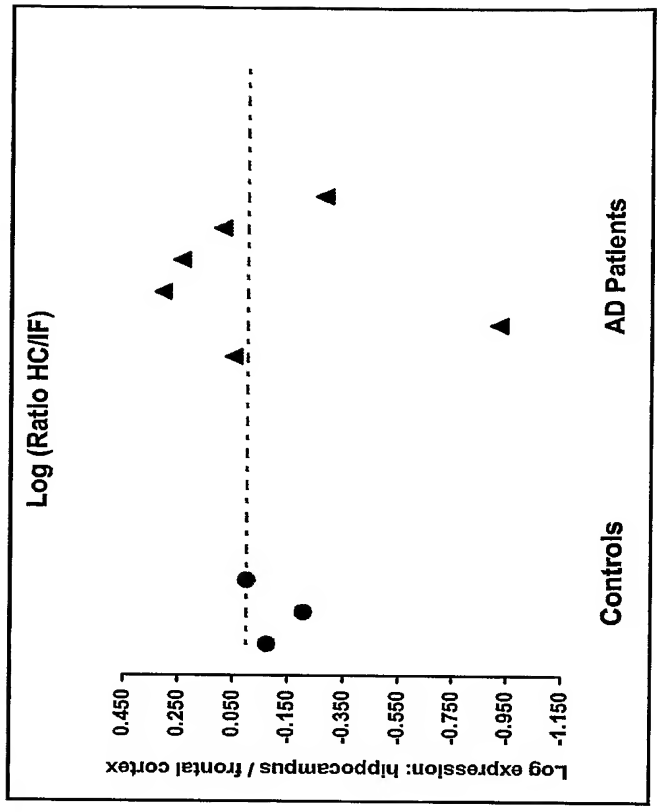
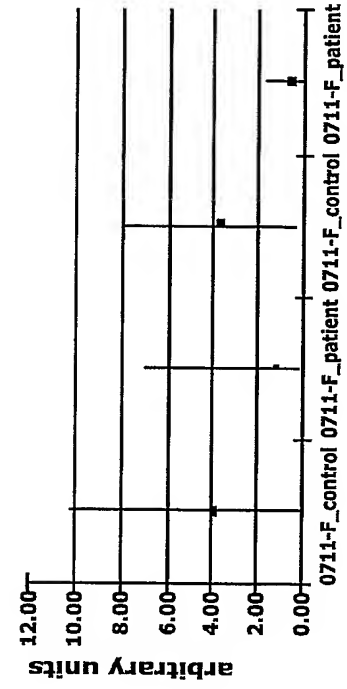
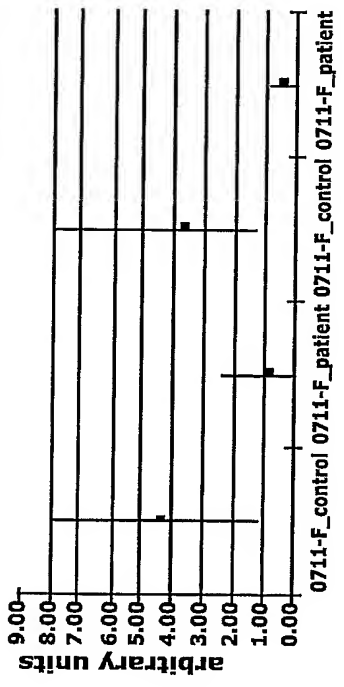
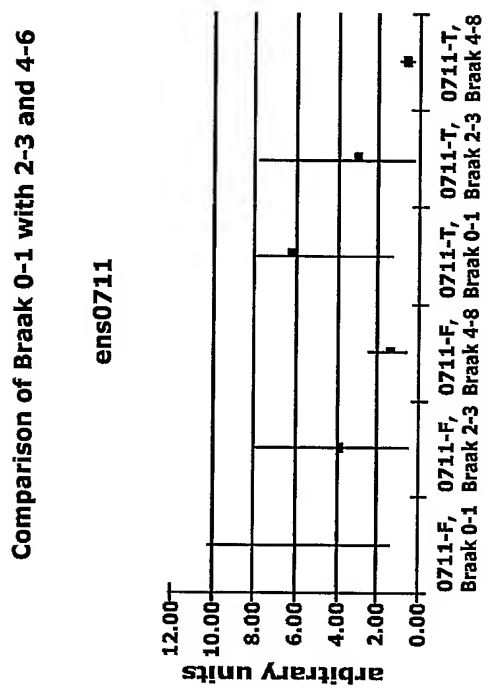
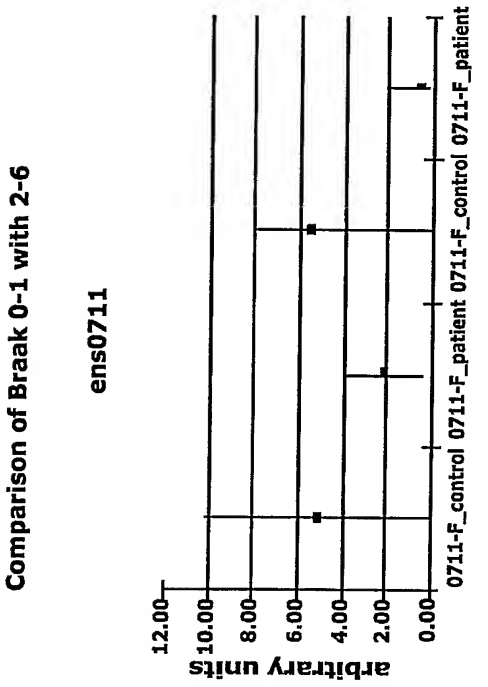


Fig.12: Analysis of absolute mRNA expression of MAL2









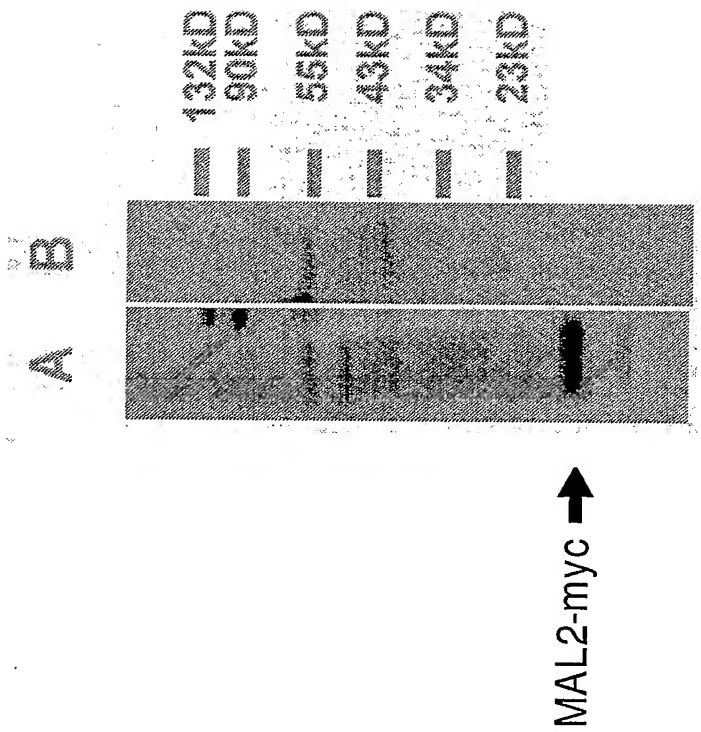
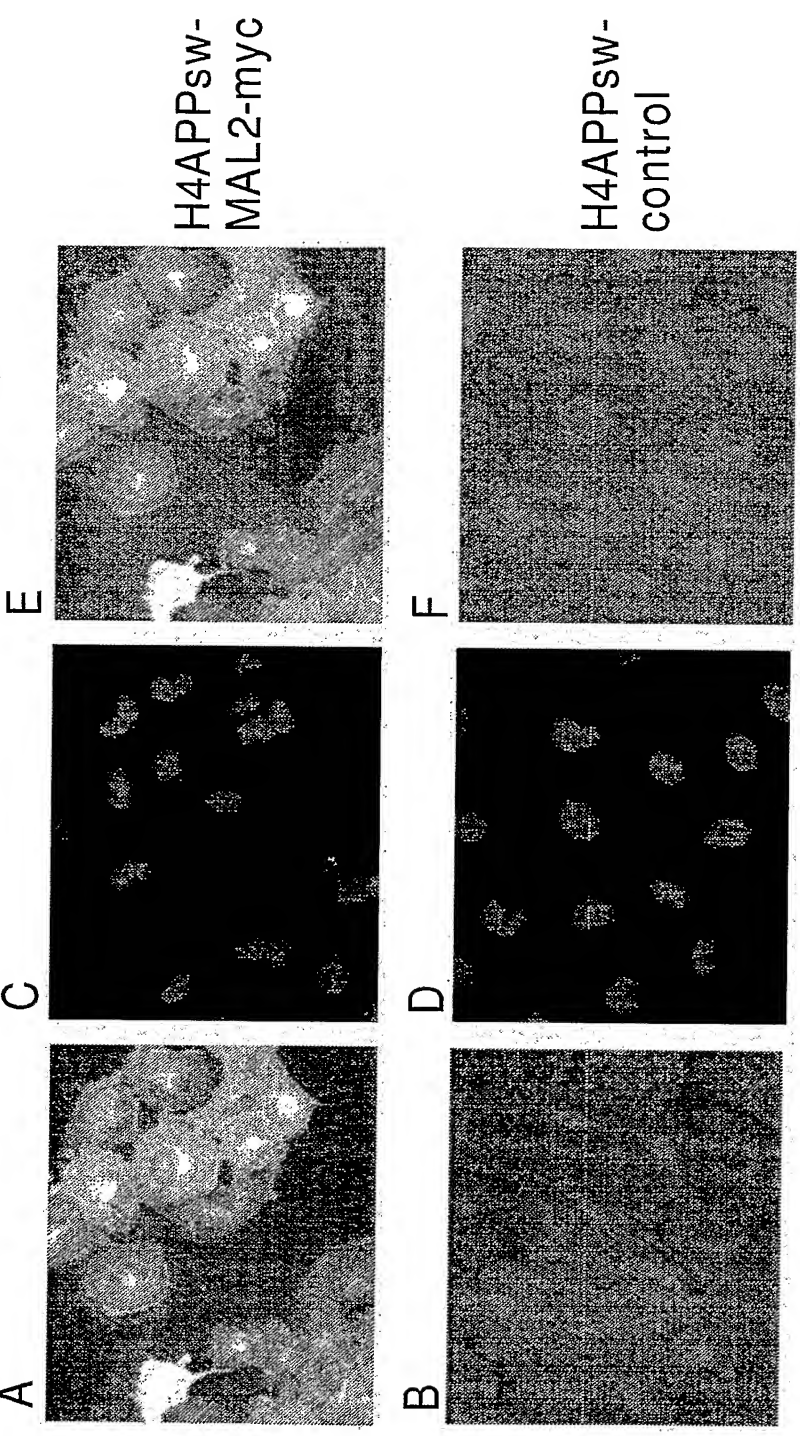


Fig. 13: Western Blot of H4APPsw cell protein extracts labeled with anti-MAL2-myc antibodies

Fig. 14: Immunofluorescence analysis of MAL2 protein in neuroglioma cells



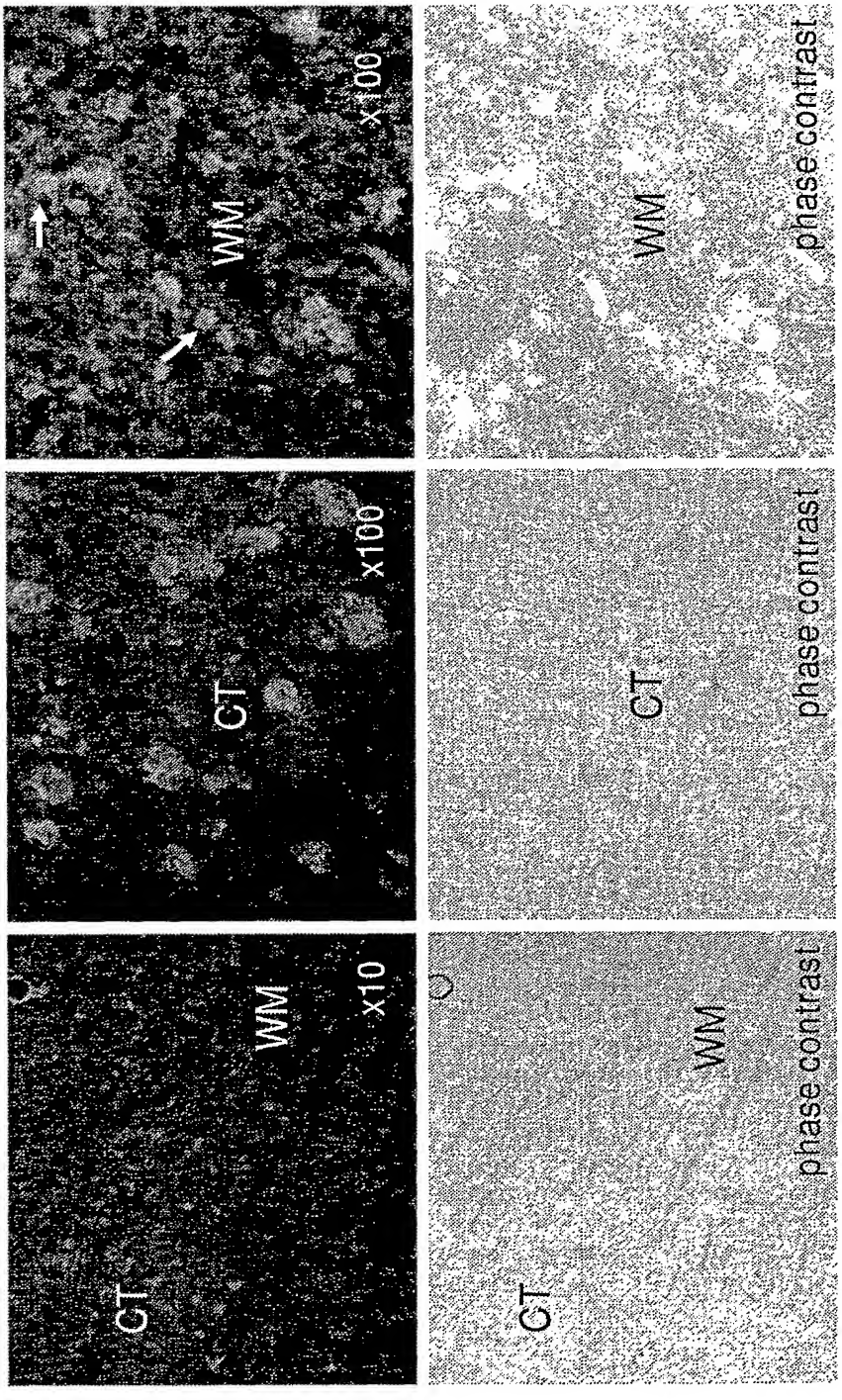


Fig. 15: Images of human pre-central brain sections labeled with anti-MAL2 antibodies and with DAPI